IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	:	Avi Kliger et al.
Application No.	:	09/943,424
Filed	:	August 30, 2001
Title of the Invention	:	HOME NETWORK SYSTEM AND METHOD
Art Unit	:	2419
Examiner	:	Cassandra Decker
Confirmation No.	:	7853

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICANTS'/APPELLANTS'
APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Dear Sir:

Pursuant to 37 C.F.R. § 1.192, applicants/appellants file this Appeal Brief in support of the Notice of Appeal filed August 6, 2009 from the Examiner's final Office Action of June 12, 2009 finally rejecting claims 71, 73-82, 84-89, 96 and 98-106, and in response to the Notice of Panel Decision from Pre-Appeal Brief Review mailed on September 11, 2009.

Pursuant to 37 C.F.R. § 1.17(c) applicants/appellants electronically authorize herewith a payment in the amount of $1,620.00 including $540.00 for the filing of a brief in support of an appeal and $1,080.00 in payment of the fee for filing a request for Oral Hearing. The Commissioner for Patents is authorized to charge any additional fees that may be due, or to credit any overpayment, in connection with the filing of this Appeal Brief, to Deposit Account 50-4650.

In view of the arguments and authorities set forth below, this Board should find the rejection of claims 71, 73-82, 84-89, 96 and 98-106 of this application to be in error and should reverse it. Claims 71, 73-82, 84-89, 96 and 98-106 are patentable.

This brief includes the following appendix:

Appendix A: Copy of claims 71, 73-82, 84-89, 96 and 98-106 involved in this appeal.

I. Identification of Real Party-In-Interest

Pursuant to 37 C.F.R. § 1.192(c)(1), applicants/appellants respectfully advise the Board that the real party-in-interest in the above-identified patent application is Broadcom Corporation, a corporation organized and existing under the laws of California, and having an office and place of business at 5300 California Avenue, Irvine, California 92617. Broadcom is the parent corporation of Octalica, Inc., the assignee of this application.

II. Related Appeals and Interferences

Pursuant to 37 C.F.R. § 1.192(c)(2), applicants/appellants respectfully advise the Board that there are no other appeals or interferences known to them, their legal representative, or their assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 71, 73-82, 84-89, 96 and 98-106 are pending in this application and are on appeal.

IV. Status of Amendments

The pending claims are as submitted in the Reply to Office Action filed on April 28, 2009. No further amendments have been submitted.

V. Summary of the Invention

Applicants' invention relates to a home network. The home network includes a coaxial backbone and a plurality of network modules. Each of the network modules is connected to the coax backbone. The home network also includes a network master module connected to the coax backbone.

Each of the network modules may be adapted for direct communication with one another over the coax backbone. Each of the network modules may be coupled to a demarcation point unit over the coax backbone. The demarcation point unit may provide an interface between the home network and an external network. The demarcation point unit may be separate from the master module.

The master module receives requests from the home network modules over the coax backbone. The requests are for bandwidth to transmit bursts to other home network modules. The master module establishes an order of transmission opportunities for the home network modules to follow when home network modules transmit bursts to other network modules.

The master module may allocate transmission opportunities for some or all of the home network modules via an allocation burst. The allocation burst may be based on the aforementioned order of transmission opportunities. Certain embodiments of the invention use the master module to transmit an allocation burst that allocates a transmission opportunity to each of the other home network modules. The length of the burst allocated for each transmission opportunity may depend at least in part on the amount of data ready for transmission in a selected transmission cycle.

VI. Issues on Appeal

The general issues presented for review on appeal are: (1) whether independent claims 71, 82 and 96 are obvious under 35 U.S.C. 103(a) from Petler in view of Silverman further in view of Bell and (2) whether independent claims 71, 82 and 96 under 35 U.S.C. 103(a) are obvious from Bushmitch in view of Silverman further in view of Bell.

VII. Argument

Applicants/appellants submit that Petler cannot be combined with Silverman, and Silverman cannot be combined with Bell, to teach independent claims 71, 81 and 96. Accordingly, the rejections based on Petler combined with Silverman in view of Bell fail. Applicants/appellants submit further that Bushmitch cannot be combined with Silverman, and Silverman cannot be combined with Bell, to teach independent claims 71, 81 and 96.

Accordingly, the rejections based on Bushmitch combined with Silverman in view of Bell fail.

A. Insufficiency of the Petler/Silverman/Bell Rejection

Petler describes a system wherein signals are sent from a first device in a home to a remote Fiber-to-the-Curb ("FTTC") terminal which is outside the home. From the remote FTTC terminal signals are directed back to a second device in the same home. The remote FTTC terminal, which resides outside the home, controls communication and permission to transmit information between devices within the home. See Petler, Abstract; see also Petler, column 5, line 65-column 6, line 23.

Silverman describes establishing a local area network ("LAN") using in-home coaxial cable. Silverman first describes a cable TV (CATV) connection which supplies broadcast and subscription television channels to the home, terminating at a demarcation point unit which implements a channel stripper and is also connected to the in-home coaxial cable. The channel stripper thus separates the external CATV network from the in-home network. See Silverman, FIGS. 1 and 5, col. 1, lines 51-52 and col. 2, lines 63-64. The channel stripper prevents signals from one or more CATV channels from entering the home, producing "stripped channels" that are now available for exclusive use by the in-home network system of Silverman. The stripped channels form a signal path between a LAN controller and peripheral devices over the in-home coaxial cable. See Silverman, Abstract.

The stripped channels that form Silverman's LAN may be located "in a home, an office building, or other dwelling." Silverman, Col. 1, lines 38-39. The channel stripper that is located at the demarcation point of the CATV cable also blocks in-home network data from entering and interfering with the external shared CATV network. Specifically, Silverman states "any data contained in the downstream components is effectively blocked from entering the CATV cable 3 that supplies the cable television signals. Therefore, problems existing in the LAN 20 *cannot* be transmitted to the CATV device 2, for example." Silverman, Col. 5, lines 11-16, brackets omitted, (emphasis added). Thus, the cited portion of Silverman states that signals on Silverman's in-home LAN are blocked from leaving the home.

In the Examiner's rejection of independent claims 71, 82 and 96 as being obvious from Petler in view of Silverman further in view of Bell, the Examiner stated: "it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the demarcation point unit and master module taught by Silverman in the home networking method taught by Petler." Final Office Action at pages 4, 7 and 9. Please note that the term master module does not appear in Silverman (as verified by a full text search for the word "master") but the applicant presumes that the LAN controller in figure 5 may be the master module referred to by the Examiner.

Applicants/appellants respectfully submit that Petler cannot be combined with Silverman at least because Petler teaches away from such a combination. Specifically, the home networking method taught by Petler is legally deficient because the portion of Petler quoted above at col. 2, lines 38-39 *teaches away* from an in-home coaxial network, by stating that an "in-home coaxial network *is not well suited* for sending signals *directly* from one device to another." Petler, col. 2, lines 38-39, (emphasis added). "A prima facie case of obviousness can be rebutted if the application . . . can show 'that the art in any material respect taught away' from the claimed invention." *In re Haruna*, 249 F.3d 1328 (Fed. Cir. 2001) (internal citations omitted) A reference may be said to teach away when a person of ordinary skill, upon reading the reference, . . . would be led in a direction divergent from the path that was taken by the application." *Id.* (internal citations omitted.) As quoted above, Petler states that an in-home network *is not well suited* for sending signals directly from one device to another, and, therefore, teaches away from a combination with Silverman and/or Bell to show or suggest the invention as claimed.

Applicants/appellants submit further that combining the demarcation point unit and master module discussed in Silverman with the home networking method taught by Petler is deficient because the LAN described by Silverman *cannot coexist* with the network described by Petler. Signals on Silverman's in-home LAN, as described above, are *unable* to leave the home whereas Petler's network requires sending system signals over a subscriber network from a first device in a home to an FTTC terminal located outside the home. This is a first reason that the technology taught by Petler cannot coexist with the technology taught by Silverman.

Furthermore, the LAN taught by Silverman requires a reservation of bandwidth that is completely free of interfering signals. "In a preferred embodiment, a demultiplexor installed at the demarcation point of the CATV cable of a home demultiplexes the CATV channels to remove or strip the selected channels for the remaining CATV channels. The selected channels are regenerated by devices on the LAN carrying the LAN signals." Silverman, Col. 1, lines 51-56 (emphasis added). Because the stripped channels are regenerated by devices on the LAN, it follows that the stripped channels are used exclusively by devices on the LAN. Petler's FTTC system, in contrast, teaches "[s]ignals [that] are routed back to the home at the telecommunications terminal by recognizing a particular address which corresponds to in-home signals. . . ." Petler, Col. 3 lines 24-26. If Petler's system utilized bandwidth allocated exclusively for a single location on its network there would be no need to distinguish between the packets via an addressing mechanism, as every packet would go to the same address. Petler's use of an addressing method indicates that Petler's system uses bandwidth that is being used for multiple addresses and possibly for multiple communication systems. Thus, the networking method of Silverman cannot coexist with the networking of method Petler. This is a second reason that the technology taught by Petler cannot coexist with the technology taught by Silverman.

It is settled law that when the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. MPEP 2143.01 (VI). Because Petler's network requires sending signals to a terminal located remote from the home and Silverman's LAN is restricted to in-home communications, Petler cannot be combined with Silverman to teach independent claims 71, 82 and 96.

Again, based on MPEP 2143.01 (VI), applicants/appellants submit that combining the demarcation point unit and master module taught by Silverman with the home networking method taught by Petler is legally deficient for the additional reason that Silverman's networking system requires exclusive use of bandwidth for LAN traffic, while Petler presumably uses a shared medium for his FTTC system. Accordingly, the principles used to operate the LAN of Silverman are incompatible with principles used to operate the

LAN of Petler. Thus, Petler's home networking method cannot be combined with Silverman's demarcation point unit and master module to teach independent claims 71, 82 and 96.

In addition, the rejection of independent claims 71, 82 and 96 further included Silverman in view of Bell. The Examiner concedes that Petler and Silverman do not describes "establishing direct communication between each of the plurality of network modules over a coax backbone." Final Office Action at page 4. The Examiner uses Bell to try to cure the deficiency of Petler and Silverman. Applicants/appellants respectfully submit that, for the reasons stated in detail below, the LAN of Silverman cannot coexist together with the LAN of Bell.

As stated above, Silverman requires exclusive use of bandwidth for LAN traffic. The LAN of Bell, on the other hand, utilizes a shared medium for data communication between its in-home devices that allows for "local and remote communication using a *common data transfer technique across a common transmission medium.*" Bell, Col. 1, lines 10-13, (emphasis added). Thus, the LAN of Bell describes a LAN predicated on the use of shared medium (or bandwidth). Therefore, applicants/appellants respectfully submit that combining Bell with Silverman to teach independent claims 71, 82 and 96 is legally deficient because the principles used to operate the LAN in Silverman are incompatible with principles used to operate Bell's in-home network. As explained above, the LAN of Silverman uses exclusive bandwidth for its LAN communications while Bell uses a shared medium. Thus, the two systems utilize different principles of operation and cannot be used to teach independent claims 71, 82 and 96.

Thus, for at the least the reasons that Petler teaches away from an in-home network, Petler cannot be combined with Silverman, and Silverman cannot be combined with Bell, the rejection of independent claims 71, 82 and 96 should be withdrawn.

B. Insufficiency of the Bushmitch/Silverman/Bell Rejection

In the Examiner's rejection of independent claims 71, 82 and 96 as being obvious from Bushmitch in view of Silverman further in view of Bell, the Examiner stated: "it would have been obvious to a person of ordinary skill in the art at the time of the

invention to use the demarcation unit and master module taught by Silverman in the home networking method taught by Bushmitch." Final Office Action at pages 14, 16 and 19.

Bushmitch describes a method for transmitting data packets in a bi-directional cable network environment. The network includes a system controller, which is a cable modem termination system (CMTS), that receives upstream channel packets and originates downstream channel packets. At least one remote terminal, which is a cable modem (CM), receives the downstream packets and originates the upstream packets. See Bushmitch, Summary of the Invention, col. 1, lines 49-54 and Bushmitch, column 3, lines 36-38. Bushmitch's system controller is a "quality of service scheduling mechanism suitable for transporting variable bit-rate video over a DOCSIS (data over cable system interface specification) compliant cable." Bushmitch, Background of the Invention, col. 1, lines 39-42.

Bushmitch states that "[i]n DOCSIS, the cable modem termination system (CMTS) *at the cable headend* and the cable modems (CMs) at the customer premises constitute a point to multi-point communication network." Col. 1, lines 17-20, (emphasis added). The CMTS discussed in this citation is Bushmitch's system controller. See col. 3, lines 36-37. Thus, the system controller taught by Bushmitch is located at the cable headend while the remote terminals or CMs are located in customer homes.

Applicants/appellants respectfully submit that combining the demarcation point unit and master module taught by Silverman with the home networking method taught by Bushmitch is legally deficient. Bushmitch's system controller is located at a cable headend and *not* at a customer home. As quoted above, data contained in Silverman's LAN is transmitted over in-home coaxial cable and is *unable* to leave the home. Accordingly, Bushmitch's home networking method that transmits data from the home to a system controller at a cable headend cannot be combined with Silverman's master module that is unable to send data outside the home. Thus, Bushmitch's home networking method cannot be combined with Silverman's demarcation unit and master module to provide a prima facie case of obviousness regarding independent claims 71, 82 and 96 of the above-captioned application.

The Examiner rejected independent claims 72, 81 and 96 as being obvious from Bushmitch in view of Silverman further in view of Bell. The Examiner conceded that Bushmitch and Silverman do not describe "establishing direct communication between each of the plurality of network modules over a coax backbone." Final Office Action at page 14. The Examiner uses to Bell to try to cure the deficiency of Bushmitch and Silverman.

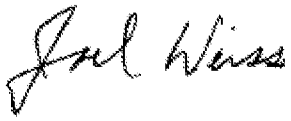
As detailed above, the principles of operation for the LAN of Silverman are incompatible with principles of operation of the LAN of Bell. Accordingly, applicants/appellants respectfully submit that it is improper to combine Silverman with Bell because the LAN of Silverman uses exclusive bandwidth for its LAN communications while Bell uses a shared medium.

Conclusion

In conclusion, neither Petler nor Bushmitch can be combined with Silverman to form a device (or provide a method) as claimed in independent claims 71, 82 and 96 without changing the principle of operation of the devices discussed in Petler and Bushmitch. Specifically, and as explained detail above, it is improper to incorporate the discussion of the out-of home networks taught by Petler and Bushmitch into the exclusively in-home network taught by Silverman. Furthermore, and as explained in detail above, it is improper to combine Silverman and Bell to teach independent claims 71, 82 and 96 because Silverman's network uses specially allocated bandwidth in contrast to Bell's shared network methodology.

Thus, each of the independent claims 71, 82, and 96 are not shown or suggested by the cited prior art, and are therefore allowable. Because each of the independent claims are not shown or suggested by the prior art, each of the dependent claims, which depend directly therefrom, are allowable as well. Applicants respectfully request the allowance of claims 71, 73-82, 84-89, 96 and 98-106. Applicants respectfully anticipate a prompt and positive response.

Respectfully submitted,



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APPENDIX A

CLAIMS:

A complete set of the claims is included below, as well as the current status of each claim. This listing of claims will replace all prior versions and listings of claims in the application:

1-70 (Cancelled)

71. (Previously Presented) In a home network having a plurality of network modules, one of said plurality of network modules being a network master module, each of said plurality of network modules being connected to a coax backbone, a method for communicating over the coax backbone between the plurality of network modules, the method comprising:

establishing direct communication between each of the plurality of network modules over the coax backbone;

establishing direct communication between the plurality of the network modules and a demarcation point unit, said plurality of network modules being coupled to the demarcation point unit via the coax backbone, said demarcation point unit providing an interface between the home network and an external network, said demarcation point unit being separate from the master module;

using the master module to receive requests sent over the coax backbone from the plurality of network modules for bandwidth to transmit bursts;

establishing an order of transmission opportunities for the plurality of network modules to follow when transmitting bursts directly to other network modules via the coax backbone; and

using the master module to transmit an allocation burst over the coax backbone that allocates a transmission opportunity to each of the plurality of network modules to transmit bursts

directly to other network modules via the coax backbone, said transmission opportunity that depends at least in part on the amount of data ready for transmission in a selected transmission cycle, said allocation burst being based on said transmission order.

72. (Cancelled)

73. (Previously Presented) The method of claim 71 further comprising designating one of the plurality of network modules to be the master module.

74. (Previously Presented) The method of claim 71 further comprising synchronizing the plurality of network modules to a predetermined burst transmitted by the master module.

75. (Previously Presented) The method of claim 71 further comprising allocating bandwidth to each of the plurality of network module requesting a guaranteed quality of service.

76. (Previously presented) The method of claim 71 further comprising receiving over the backbone, at a selected network module, a grant signal that indicates that the given network module can transmit a burst.

77. (Previously presented) The method of claim 71 further comprising transmitting, by a selected network module, an empty burst if the given network module has no data to transmit.

78. (Previously Presented) The method of claim 75 further comprising changing the amount of allocated bandwidth.

79. (Previously presented) The method of claim 71 further comprising using the master module to change the order of transmission opportunities.

80. (Previously presented) The method of claim 71 further comprising using the master module to change the order of transmission opportunities and to change the amount of allocated bandwidth.

81. (Previously presented) The method of claim 71 further comprising using the master module to allocate an opportunity to a module involved in a registration process, said opportunity for transmitting a self-training burst.

82. (Previously Presented) A home network comprising:

a coax backbone;

a plurality of network modules, each of said plurality of network modules being connected to the coax backbone, said plurality of network modules being in direct communication via at least one splitter with a demarcation point unit over the coax backbone, said demarcation point unit providing an interface between the home network and an external network, said demarcation point unit being separate from a master module; and

the network master module being connected to the coax backbone, the master module that receives requests from the plurality of network modules over the coax backbone, the requests being for bandwidth to transmit bursts directly over the coax backbone to other network modules, the master module that establishes a transmission order of transmission opportunities for the plurality of network modules to follow when transmitting bursts to other network modules and that transmits a burst over the coax backbone that allocates a transmission opportunity to each of the plurality of network modules to transmit bursts, said burst being based on said transmission order, said transmission order being based at least in part on said received requests, wherein each of the plurality of network modules is configured to communicate with other network modules via the coax backbone and wherein a parameter of a transmission opportunity for a selected network module depends at least in part on an amount of data ready for transmission at the selected network module in a selected transmission cycle.

83. (Cancelled)

84. (Previously Presented) The network of claim 82 wherein, in response to a predetermined burst transmitted by the master module, the plurality of network modules are synchronized.

85. (Previously Presented) The network of claim 82 further comprising bandwidth allocated to each of the plurality of network module requesting a guaranteed quality of service.

86. (Previously presented) The network of claim 82 further comprising a grant signal that indicates that a given network module can transmit a burst.

87. (Previously presented) The network of claim 82 further comprising an empty burst associated with a selected network module that has communicated that the selected network module includes no data to transmit.

88. (Previously presented) The network of claim 82 wherein the master module is adapted to change the order of transmission opportunities.

89. (Previously presented) The network of claim 82 further comprising a self-training burst that is adapted to be received by a network module involved in a registration process.

90. (Withdrawn) A method of controlling power consumption in a home network, the home network including a plurality of network modules and a home-network reflector unit (HRU), each of said network modules and the HRU being connected to a coax backbone, the method comprising:

determining a predefined input power level at the HRU; and

adjusting the transmission power of each module to a selected power level wherein, when the transmitted signal of each module arrives at the HRU, the transmitted signal comprises the predefined power level.

91. (Withdrawn) The method of claim 90 further comprising maintaining an HRU output signal at a constant power level.

92. (Withdrawn) The method of claim 90 wherein each of a plurality of the network modules comprises a different transmission power.

93. (Withdrawn) A home network comprising:

a plurality of network modules, each of the modules comprising a transmission power;

a home-network reflector unit (HRU) comprising a predefined input power level; and

a coax backbone that couples each of the plurality of network modules to the HRU, wherein when a transmitted signal of each module arrives at the HRU, the transmitted signal comprises the predefined input power level, and wherein the transmission power of each of the modules corresponds at least in part with a distance between the module and the HRU.

94. (Withdrawn) The network of claim 93, wherein the HRU further comprises a substantially constant power output signal.

95. (Withdrawn) The method of claim 93, wherein each of a plurality of the network modules comprises a different transmission power.

96. (Previously Presented) An integrated circuit storing computer-executable instructions which, when executed by a processor on a computer system, perform a method, the method comprising:

in a home network having a plurality of network modules, one of said plurality of network modules being a network master module, each of said plurality of network modules being connected to a coax backbone, said plurality of network modules communicating over the coax backbone, the communicating comprising:

establishing direct communication between two or more of the plurality of network modules over the coax backbone;

establishing direct communication between two or more of the plurality of the network modules and a demarcation point unit, said plurality of network modules being coupled to the demarcation point unit via the coax backbone, said demarcation point unit providing an interface between the home network and an external network, said demarcation point unit being separate from the master module;

using the master module to receive requests sent over the coax backbone from the plurality of network modules for bandwidth to transmit bursts;

in response to receiving the requests, establishing an order of transmission opportunities for the each of the plurality of network modules to follow when transmitting bursts directly to other network modules; and

using the master module to transmit an allocation burst over the coax backbone that allocates a transmission opportunity to each of the plurality of network modules to transmit bursts, said allocation burst being based on said transmission order, said transmission opportunity that depends at least in part on the amount of data ready for transmission in a selected transmission cycle.

97. (Cancelled)

98. (Previously Presented) The method of claim 96 further comprising designating one of the plurality of network modules to be the master module.

99. (Previously Presented) The method of claim 96 further comprising synchronizing the plurality of network modules to a predetermined burst transmitted by the master module.

100. (Previously Presented) The method of claim 96 further comprising allocating bandwidth to each network module requesting a guaranteed quality of service.

101. (Previously Presented) The method of claim 96 further comprising receiving over the backbone, at a selected network module, a grant signal that indicates that the given network

module can transmit a burst.

102. (Previously Presented) The method of claim 96 further comprising transmitting, by a selected network module, an empty burst if the given network module has no data to transmit.

103. (Previously Presented) The method of claim 100 further comprising changing the amount of allocated bandwidth.

104. (Previously Presented) The method of claim 96 further comprising using the master module to change the order of transmission opportunities.

105. (Previously Presented) The method of claim 96 further comprising using the master module to change the order of transmission opportunities and to change the amount of allocated bandwidth.

106. (Previously Presented) The method of claim 96 further comprising using the master module to allocate an opportunity to a module involved in a registration process, said opportunity for transmitting a self-training burst.